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10/657,727	09/08/2003	Charles C. Wyatt	329228001US5	8899

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EXAMINER

JEFFERY, JOHN A

ART UNIT PAPER NUMBER

3742

DATE MAILED: 12/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/657,727

Applicant(s)WYATT ET AL. *CW***Examiner**

John A. Jeffery

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 September 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-102 is/are pending in the application.
- 4a) Of the above claim(s) 52-54, 101 and 102 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-67, 69-82 and 84-100 is/are rejected.
- 7) ☒ Claim(s) 68 and 83 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 20031024, 2004012.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☒ Other: See Continuation Sheet.

Continuation of Attachment(s) 6). Other: Computer Translation of JP10-43258.

DETAILED ACTION

Acknowledgement of Elected Claims Without Traverse

Applicant's election of Group I & Species A, claims 1-51 and 55-100 without traverse is acknowledged. Accordingly, claims 52-54, 101, and 102 are withdrawn from consideration as being directed to a nonelected invention.

Claim Objections

Claim 2 is objected to because of the following informalities:

In line 2, "conductive of" must be changed to "of conductive." Appropriate correction is required.

Claim Rejections - 35 U.S.C. § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

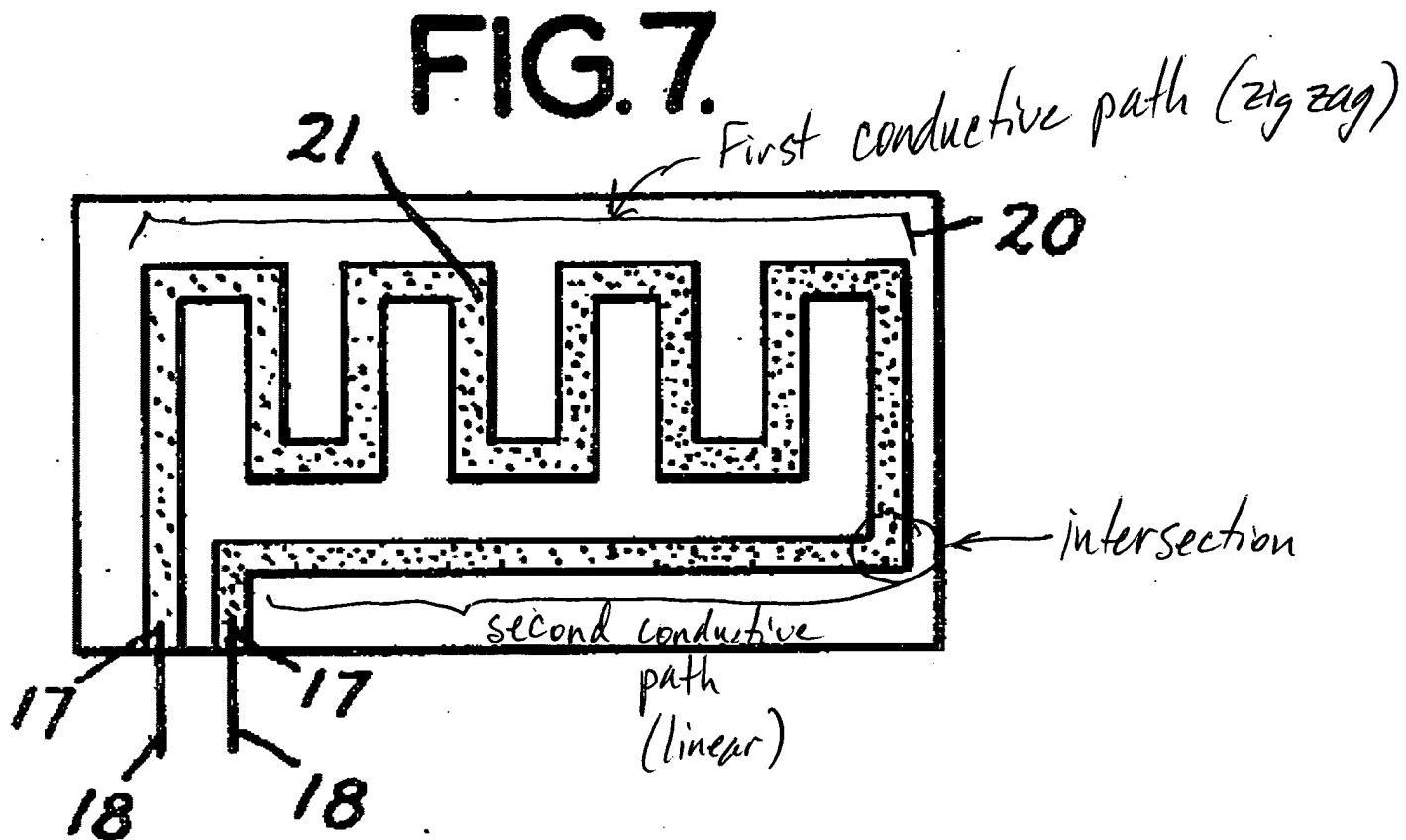
Claims 1, 2, 4, 6, 7, 17, 40, 42-44, 46-50, 55, 56, 59, 64, 73, 74, and 76-78 are rejected under 35 USC 102(b) as being anticipated by Watson (US 2,473,183). Watson

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(US 2,473,183) discloses a heating element comprising a flexible fabric substrate with a plurality of conductive strands comprising yarns 14 (core portion) coated with conductive material 11. See Fig. 3 and col. 2, lines 49-53, and col. 4, lines 42-44. The coated strand generates heat when applied with electric power. See col. 1, lines 22-27.

Regarding claim 2, according to col. 4, line 63 - col. 5, line 3, the yarn can be coated with the conductive material prior to weaving into the fabric. See also col. 2, lines 49-53 (noting that some or all of the yarns comprising the fabric can be coated).

Regarding claims 43, 44, 76, and 77, note the "first conductive path" comprising the zigzag portion (non-linear) and the "second conductive path" comprising the linear portion in the reproduction of Fig. 7 of Watson (US 2,473,183) below:



Regarding claim 55, Watson (US 2,473,183) teaches that the heater is useful to heat mattresses and bedspreads. See col. 1, lines 28-35.

Claims 29-32 and 34-37 are rejected under 35 USC 102(e) as being anticipated by DeAngelis et al (US 2003/0178414). DeAngelis et al (US 2003/0178414) discloses a heating element comprising a flexible substrate with a plurality of conductive strands having a silver portion 21 (Para. 0014) disposed on a core yarn to form a heater yarn 11. The heater yarn 11 is woven with non-conductive yarns 13. See Figs. 1-3B and Paras. 0012 and 0014.

Joint Inventors -- Common Ownership Presumed

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103, the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligations under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103.

Claim Rejections - 35 U.S.C. § 103(a)

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Subject matter developed by another person, which qualifies as prior art only under subsection (f) and (g) of section 102 of this title, shall not preclude patentability under this section where the subject matter and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person.

Claims 3, 5, 8-16, 18-25, 41, 57, 58, 60-63, 75, and 79 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watson (US 2,473,183) in view of DeAngelis et al (US 2003/0178414). The claims differ from Watson (US 2,473,183) in calling for a nylon or polyester yarn. But such synthetic materials in heater yarns is well known in

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the art as evidenced by DeAngelis et al (US 2003/0178414) in Para. 0012. In view of DeAngelis et al (US 2003/0178414), it would have been obvious to one of ordinary skill in the art to use nylon or polyester as a yarn material in the previously described apparatus to use a soft synthetic material for the core material that is relatively inexpensive and readily available. The recited values of denier are not seen to be critical to the invention and would be readily discoverable by routine experimentation by skilled artisans.

The claims also differ from the previously cited prior art in calling for entwining the conductive strands with non-conductive strands. But such entwinement is well known in the art. DeAngelis et al (US 2003/0178414), for example, discloses in Figs. 3A and 3B entwining heater yarns 11 with non-conductive yarns 13 to form a woven fabric. Such an arrangement adds strength to the fabric, yet retains flexibility. See also Para. 0023. In view of DeAngelis et al (US 2003/0178414), it would have been obvious to one of ordinary skill in the art to entwine the conductive strands with non-conductive strands in the previously described apparatus to adds strength to the fabric, yet retain flexibility.

Regarding claim 10, Watson (US 2,473,183) discloses in col. 2, lines 46-48 that the heater film thickness can be as low as 1 mil (25.4 microns).

Regarding claims 11 and 12, although the claimed thickness is lower than 1 mil, no criticality is seen in the thickness values claimed. As is well known in the art, reducing a heater coating's thickness reduces manufacturing costs -- particularly when the coating is an expensive material such as silver. Moreover, choosing the thickness

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of the coating -- and the requisite amount of heat generated by the coating -- is an engineering decision based on a number of factors well known to skilled artisans depending on the application, such as the type of workpiece to be heated, the amount of heat needed, the ambient conditions in which the heater will be operated, etc.

Moreover, a lower coating thickness constitutes merely an optimum value within the scope of routine experimentation by those skilled in the art. It is well settled that where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation. *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233,235 (CCPA 1955).

Regarding claims 41 and 75, no criticality is seen in the repeating Greek key pattern over the repeating pattern of the prior art. In addition, such a pattern amounts to an engineering design preference and does not therefore constitute a patentably distinguishable characteristic of the invention.

Claim 33 is rejected under 35 U.S.C. 103(a) as being unpatentable over DeAngelis et al (US 2003/0178414) in view of Watson (US 2,473,183). The claim differs from the previously cited prior art in calling for the silver portion to be 100 microns or less. Such a heater coating thickness, however, is well known in the art. Watson (US 2,473,183), for example, discloses in col. 2, lines 46-48 that the heater film thickness on a core yarn in a heated fabric can be as low as 1 mil (25.4 microns). In view of Watson (US 2,473,183), it would have been obvious to one of ordinary skill in the art to provide a coating with such a thickness to minimize the amount of silver used

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to manufacture the heater, yet still retain its electric heating properties, thus minimizing fabrication costs.

Claims 26-28, 51, 65, and 80 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watson (US 2,473,183) in view of DE3146234. The claims differ from the previously cited prior art in calling for the conductive strands to be generally transparent to X rays. But heating fabrics that are permeable to X rays are well known in the art. DE3146234, for example, discloses a nickel-plated textile sheet that is permeable to X rays. Because the heater does not interfere with X-rays, such a heater is ideal for operating tables. See abstract. In view of DE3146234, it would have been obvious to one of ordinary skill in the art to provide an electric heater permeable to X-rays in the previously described apparatus so that the heater did not interfere with X-rays thus making it ideal for operating tables.

Regarding claim 28, the recited degree of transparency is well within the realm of routine experimentation and optimization by skilled artisans and does not constitute a patentably distinguishable feature of the invention.

Claims 38 and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over DeAngelis et al (US 2003/0178414) in view of DE3146234. The claims differ from the previously cited prior art in calling for the conductive strands to be generally transparent to X rays. But heating fabrics that are permeable to X rays are well known in the art. DE3146234, for example, discloses a nickel-plated textile sheet that is

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permeable to X rays. Because the heater does not interfere with X-rays, such a heater is ideal for operating tables. See abstract. In view of DE3146234, it would have been obvious to one of ordinary skill in the art to provide an electric heater permeable to X-rays in the previously described apparatus so that the heater did not interfere with X-rays thus making it ideal for operating tables.

Regarding claim 39, the recited degree of transparency is well within the realm of routine experimentation and optimization by skilled artisans and does not constitute a patentably distinguishable feature of the invention.

Claims 66, 67, 81, and 82 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watson (US 2,473,183) in view of Kochman et al (US 2002/0117495). The claims differ from the previously cited prior art in calling for a radiolucent optical temperature sensor. But such temperature sensors are well known in the art. Kochman et al (US 2002/0117495), for example, discloses an optical fiber filament temperature sensor that senses temperature in an electrically heated personal warming device. See Para. 0017. As is well known in the art, such optical temperature sensors are transparent to electromagnetic radiation including X rays. Moreover, the heater of Kochman et al (US 2002/0117495) is suitable for use as a mattress according to Para. 0090. In view of Kochman et al (US 2002/0117495), it would have been obvious to one of ordinary skill in the art to provide an optical temperature sensor in the previously described apparatus to reliably detect temperature with a sensor that was impervious to electromagnetic fields, including X rays.

Claims 69-72, 84, 85, and 87 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watson (US 2,473,183) in view of JP10-43258. The claims differ from the previously cited prior art in calling for the support to include a compressible foam portion as well as upper and lower foam pads. But such a cushioning structure in electrically heated patient support surfaces is well known in the art. For example, JP10-43258 discloses an operating table heater comprising a carbon-based electric heating element 22 sandwiched between foam layers 10A, 10B (note "sponge or the like" in the JPO abstract and "rubber sponge" in the computer English language translation, Para. 0033). Such a structure not only cushions the patient atop the support, but also aids in protecting the electric heating element from damage. In view of JP10-43258, it would have been obvious to one of ordinary skill in the art to provide upper and lower foam layers above and below the heating element in the previously described apparatus to not only cushion the patient atop the support, but also protect the electric heating element from damage.

Regarding claims 72 and 87, the recited layer thickness is an engineering design choice well within the level of skilled artisans depending on, among other things, the degree of cushioning and conductive heat desired to impart to the patient. Moreover, the pad thickness is well within the realm of routine experimentation and optimization by skilled artisans and does not constitute a patentably distinguishable feature of the invention.

Claim 86 is rejected under 35 U.S.C. 103(a) as being unpatentable over Watson (US 2,473,183) in view of JP10-43258 in view of Hand (US 6,582,456). The claim differs from the previously cited prior art in calling for the support to include individual foam particles. But such a structure in heated patient supports is well known. Hand, for example, discloses in col. 4, lines 8-10 using Styrofoam beads 72 to conform to the patient's shape. In view of Hand, it would have been obvious to one of ordinary skill in the art to provide individual foam particles in lieu of a fixed foam structure to more readily conform to the patient's shape.

Claims 94-96 and 99 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watson (US 2,473,183) in view of DeAngelis et al (US 2003/0178414), JP10-43258, and further in view of Glucksman (US 5,720,774). The claims differ from the previously cited prior art in calling for a form-fitting cover enclosing at least a portion of the foam pad and the heating element. Providing a waterproof cover enclosing foam pads and a heating element sandwiched therebetween is conventional and well known in the art as evidenced by Glucksman noting waterproof cover 2, 2' that encloses foam layers 4, 4' and heating element 3. See Figs. 2A and 2B and col. 5, lines 19-45. In view of Glucksman, it would have been obvious to one of ordinary skill in the art to provide a waterproof cover enclosing the foam layers of the previously described apparatus so that moisture ingress into the foam layers and electric heater and associated electrical connections was prevented, thereby improving safety and prolonging the life of the heater.

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Regarding claim 95, no criticality is seen in the repeating Greek key pattern over the repeating pattern of the prior art. In addition, such a pattern amounts to an engineering design preference and does not therefore constitute a patentably distinguishable characteristic of the invention.

Claim 97 is rejected under 35 U.S.C. 103(a) as being unpatentable over Watson (US 2,473,183) in view of DeAngelis et al (US 2003/0178414), JP10-43258, Glucksman, and further in view of DE3146234. The claim differs from the previously cited prior art in calling for the conductive strands to be generally transparent to X rays. But heating fabrics that are permeable to X rays are well known in the art. DE3146234, for example, discloses a nickel-plated textile sheet that is permeable to X rays. Because the heater does not interfere with X-rays, such a heater is ideal for operating tables. See abstract. In view of DE3146234, it would have been obvious to one of ordinary skill in the art to provide an electric heater permeable to X-rays in the previously described apparatus so that the heater did not interfere with X-rays thus making it ideal for operating tables.

Claim 98 is rejected under 35 U.S.C. 103(a) as being unpatentable over Watson (US 2,473,183) in view of DeAngelis et al (US 2003/0178414), JP10-43258, Glucksman, and further in view of Kochman et al (US 2002/0117495). The claim differs from the previously cited prior art in calling for a radiolucent temperature sensor. But such temperature sensors are well known in the art. Kochman et al (US

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2002/0117495), for example, discloses an optical fiber filament temperature sensor that senses temperature in an electrically heated personal warming device. See Para. 0017. As is well known in the art, such optical temperature sensors are transparent to electromagnetic radiation including X rays. Moreover, the heater of Kochman et al (US 2002/0117495) is suitable for use as a mattress according to Para. 0090. In view of Kochman et al (US 2002/0117495), it would have been obvious to one of ordinary skill in the art to provide an optical temperature sensor in the previously described apparatus to reliably detect temperature with a sensor that was impervious to electromagnetic fields, including X rays.

Claim 100 is rejected under 35 U.S.C. 103(a) as being unpatentable over Watson (US 2,473,183) in view of DeAngelis et al (US 2003/0178414), JP10-43258, Glucksman, and further in view of Richardson (US 6,050,265). The claim differs from the previously cited prior art in calling for one or more magnets within the cover proximate to the fill layer. But providing magnets in conjunction with an electric heating element for a body supporting device is well known in the art. Richardson (US 6,050,265), for example, discloses disposing a plurality of small magnets 48 along with an electric heating element 28 for therapeutic purposes. In view of Richardson (US 6,050,265), it would have been obvious to one of ordinary skill in the art to include magnets in the previously described apparatus for therapeutic purposes.

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Claims 88-91 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hand et al (US 6,582,456) in view of Watson (US 2,473,183). Hand et al (US 6,582,456) discloses a contoured, electrically-heated patient warming device. The device is heated by an electrically heated fabric. See col. 4, lines 12-13 and col. 6, lines 3-9. The claims differ from the previously cited prior art in calling for the heating element to comprise a plurality of conductive strands with a core and conductive portion. But such flexible electric heaters are well known in the art. For example, Watson (US 2,473,183) discloses a heating element comprising a flexible fabric substrate with a plurality of conductive strands comprising yarns 14 (core portion) coated with conductive material 11. See Fig. 3 and col. 2, lines 49-53, and col. 4, lines 42-44. The coated strand generates heat when applied with electric power. See col. 1, lines 22-27. Moreover, according to col. 4, line 63 - col. 5, line 3, the yarn can be coated with the conductive material prior to weaving into the fabric. See also col. 2, lines 49-53 (noting that some or all of the yarns comprising the fabric can be coated). Such an arrangement enables the fabric strands themselves to generate heat, thus enabling the electric heater to be woven directly into the fabric during manufacture. In view of Watson (US 2,473,183), it would have been obvious to one of ordinary skill in the art to provide a plurality of conductive strands with a core and conductive portion to enable the fabric strands themselves to generate heat, thus enabling the electric heater to be woven directly into the fabric during manufacture.

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Claims 92 and 93 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hand et al (US 6,582,456) in view of Watson (US 2,473,183) and further in view of DeAngelis et al (US 2003/0178414). The claims differ from the previously cited prior art in calling for the conductive strands to comprise a non-linear, repeating pattern across the substrate. But repeating, nonlinear strand patterns are well known in the art as evidenced by DeAngelis et al (US 2003/0178414) noting Figs. 3A and 3B where heater yarns 11 -- with a repeating, nonlinear pattern -- are entwined with non-conductive yarns 13 to form a woven fabric. Such an arrangement adds strength to the fabric, yet retains flexibility. See also Para. 0023. In view of DeAngelis et al (US 2003/0178414), it would have been obvious to one of ordinary skill in the art to provide a linear, repeating pattern to enable the conductive strands to be entwined with non-conductive strands in the previously described apparatus to add strength to the fabric, yet retain flexibility.

Regarding claim 93, no criticality is seen in the repeating Greek key pattern over the repeating pattern of the prior art. In addition, such a pattern amounts to an engineering design preference and does not therefore constitute a patentably distinguishable characteristic of the invention.

Claim 45 is rejected under 35 U.S.C. 103(a) as being unpatentable over Watson (US 2,473,183) in view of Morey (US 3,349,359). The claim differs from the previously cited prior art in calling for a plurality of linearly conductive paths intersect the non-linear conductive path. But such an arrangement is well known in the art. Morey (US 3,349,359) discloses a plurality of non-linear conductive strands 12' that intersect with a

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plurality of linear conductive strands 16 in Fig. 2. Such an arrangement enables weaving multiple conductors within a single fabric. In view of Morey (US 3,349,359), it would have been obvious to one of ordinary skill in the art to provide a patten with a plurality of linearly conductive paths intersecting the non-linear conductive path in the previously described apparatus to enables weaving multiple conductors within a single fabric.

Allowable Subject Matter

Claims 68 and 83 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Other Pertinent Prior Art

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Applicant should (1) separately consider the art, and (2) consider the art together with the previously cited prior art for potential applicability under 35 U.S.C. §§ 102 or 103 when responding to this action. US 229 and US 369 disclose heated fabrics relevant to the instant invention.

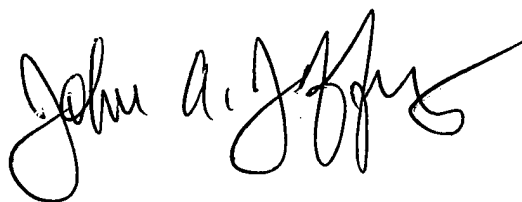
Conclusion

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to John A. Jeffery whose telephone number is (571) 272-4781. The examiner can normally be reached on Monday - Thursday from 7:00 AM to 4:30 PM. The examiner can also be reached on alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robin Evans, can be reached on (571) 272-4777. All faxes should be sent to the centralized fax number at (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read "John A. Jeffery", with a stylized, cursive script.

**JOHN A. JEFFERY
PRIMARY EXAMINER**

12/10/04